DOCUMENT RESUME

ED 191 980 UD 020 961

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TITLE Fort Hamilton High School Greek, Arabic and Spanish (GRASP) Bilingual Program, ESEA Title VII. Final Evaluation Report, 1978-1979.
INSTITUTION New York City Board of Education, Brooklyn, N.Y. Office of Educational Evaluation.
PUB DATE [79]
NOTE 56p.

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Arabic; *Bilingual Education; English (Second Language); *Greek; Program Descriptions; *Program Effectiveness; Secondary Education; *Spanish Speaking
IDENTIFIERS *Bilingual Education Act 1968; Elementary Secondary Education Act Title VII; *New York (Brooklyn)

ABSTRACT

The Fort Hamilton High School Greek, Arabic, and Spanish Bilingual Program (GRASP) served 200 Brooklyn, New York, students found to have limited proficiency in English. Students received instruction in English as a Second Language or remedial English, native language arts (except Arabic), and native language instruction in science, social studies, and mathematics. Additional program components included curriculum development, teacher training, supportive services, parental involvement, and mainstreaming with English speaking peers. Program evaluation was completed using student achievement data from norm and criterion referenced tests and evaluator observations. Achievement data indicated that (1) students on most levels made significant gains in reading English, (2) most students achieved program goals in native language arts, (3) substantial percentages of students achieved course expectations in mathematics, and (4) most students mastered program objectives in science and social studies. Attendance figures indicated that GRASP students surpassed the school wide attendance rates. Other program components were found to be successful. Recommendations for future program implementation are included. (MK)

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Final Evaluation Report

FORT HAMILTON HIGH SCHOOL

GREEK, ARABIC AND SPANISH (GRASP)

Bilingual Program

ESEA TITLE VII

Project 5004 - 976[illegible]

1978 - 1979

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GREEK, ARABIC AND SPANISH (GRASP)

Bilingual Program

1978 - 1979

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GREEK, ARABIC AND SPANISH (GRASP)

BILINGUAL PROGRAM

FORT HAMILTON HIGH SCHOOL

Location:	8301 Shore Road, Brooklyn, N.Y. 11209
Year of Operation:	1978-1979, fourth year of funding
Target Languages:	Greek, Arabic and Spanish
Number of Participants:	200 (40 Greek, 40 Arabic, 120 Spanish)
Principal:	Mr. Charles Loiacano
Coordinator:	Ms. Gertrude Berns

CONTEXT

Fort Hamilton High School is located in the Bay Ridge area of Brooklyn, a middle class to upper middle class area. The immediate environs of Fort Hamilton High School are characterized by single family homes with manicured lawns and tree-lined streets.

Fort Hamilton High School has a total school enrollment of over 4,000 students. Of these 12.5% are Black, 2.8% are Asian, 15.9% are Hispanic and 68.8% are "Other", principally White. Approximately 21%, about 850 students, travel to the school from ghetto areas. About half of this group is of Hispanic origin. The school also serves approximately 200 Greek and Arabic dominant students who live in the vicinity of the school. Nearly 600 students, or 15% of the school population, have been identified as being non-English dominant. Based on 1976 figures, 17.9% of the school population is free lunch eligible, and 27% receive norm aid to families with dependent children.

PROGRAM DESCRIPTION

The Fort Hamilton Bilingual Program is designed to offer bilingual instructional and supportive services to high school students of limited English proficiency (LEP). The program serves approximately 200 LEP students of Greek (40 students) Arabic (40 students) and Spanish (120 students) backgrounds. These groups represent the largest number of LEP students at Fort Hamilton High School.

Students receive intensive instruction in English, either English as a Second Language or English Reading; instruction in the native language (except Arabic); and content area instruction in the native language in the areas of Science, Social Studies and Mathematics. Students also participate in mainstream program classes, depending on the language requirements of the class and the student's English language competence. Through mainstream program classes and participation in lunchroom and assembly programs the students are integrated with the general school population.

The bilingual program is funded by local tax levy monies and ESEA Title VII funds. The tax levy funds principally support the instructional staff. ESEA Title VII funds support the project director, three resource teachers (one in each language) and the teacher trainer, as well as three paraprofessionals and a secretary. The Title VII funds also support the materials/curriculum development/adaptation efforts, teacher training activities, supportive services, and parental involvement. All of these, as well as the instructional component, will be discussed in detail in the body of the report.

The GRASP Program at Fort Hamilton High School is the only bilingual high school program in the United States serving Greek and Arabic speaking students. Because of this unique feature a great deal of interest in the program has been demonstrated. Many inquiries have been received from all parts of the country concerning materials, methods of instruction and cultural events sponsored by the project. Therefore the contribution made by GRASP to bilingual education is greater than those services received by the participating students and evident in this report.

Table I summarizes the number of students served by the bilingual program.

TABLE I

Bilingual Students by Language Group

Language	# of Students	Percentages
Spanish	120	60%
Arabic	40	20%
Greek	40	20%
Total	200	100%

FUNDING SOURCES

As stated above, the Ft.Hamilton program is fiscally supported by tax levy and ESEA Title VII funds. Title VII principally supports non-instructional program support services and three paraprofessionals while tax levy funds support program teachers and one paraprofessional. The following table gives a breakdown of bilingual program staff by funding source.

TABLE II
Bilingual Staff by Funding Source

Funding Source	Instructional Staff	Non-Instructional Staff
Title VII	3 Paraprofessionals	1 Project Director
		3 Resource Teachers
		1 Teacher Trainer
		1 Secretary
Tax Levy	9 Teachers	----
	1 Paraprofessional	

Students participating in the program receive English language development courses, instruction in content areas in the native language as well as the study of Greek and Spanish, and mainstream courses.

The English language instructional component, composed of ESL and English reading classes, is supported wholly with tax levy funds. Bilingual program students participated in four (4) ESL classes and seven (7) English reading classes. Students were grouped together for English language instruction regardless of native language, and participated with mainstream students in the reading classes.

Native language instruction was provided in the content areas of mathematics, social science, and science for all language groups. In addition, Greek and Spanish students participated in native language arts classes. Spanish typing and commercial Spanish courses were also provided under the program. These native language classes were principally supported by tax-levy funds. Title VII provided three para-professionals. However, because of insufficient numbers of teachers in each language group who were prepared to provide instruction in each of the content areas offered under the program, resource teachers in each language were able to support and provide instructional services. This was principally true for Arabic language classes, where a qualified teacher had not been identified. Thus the program was able to maximize the number and range of options in native language instruction available for program students.

Title VII funds were principally used to support non-instructional or instructional support services. The following table delineates these non-instructional services and the staff members who provided them.

TABLE III

Personnel Providing Non-Instructional Services Under Title VII

Component	Personnel
Curriculum Development	3 Resource Teachers-Greek/Arabic/Spanish
Counseling	Project Director,3 Resource Teachers
Staff Development	Project Director, Teacher Trainer
Parental Involvement	All Staff
Administration/Management	Project Director

A principal and essential feature of the program revolved around the support services, beyond instructional, provided by the resource teachers. In a program serving three language groups their roles and linguistic capacity made a valuable contribution towards the development of a program of high quality. Among the services provided by the resource teachers were the following:

a) Supplying classroom teachers with materials and instructional aids in their respective languages;

b) Demonstrating to the classroom teachers the application and implementation of materials;

c) Extending assistance to individual students;

d) Maintaining close contact with parents;

e) Acting as liaisons with college advisors, guidance counselors, deans and other school personnel;

f) Translation and adaptation of texts and other instructional materials;

g) Development of resource materials in the three target languages.

Likewise, the paraprofessionals funded principally with Title VII funds, played a critically important role. Their primary function was working in the classroom as assistants to the teachers, thus facilitating the individualization of instruction. Under the supervision of teachers they also tutored students with special problems on a one-to-one basis. Among their other responsibilities were assisting teachers with clerical chores, such as duplicating materials, maintaining student profiles, sorting and cataloging materials, maintaining bulletin boards, scoring of tests, etc:

BILINGUAL CLASSES

All students received instruction in English and Physical Education. Beyond that their programs varied greatly according to individual interests, abilities, progress grades and graduation requirements. Pupils may be enrolled in one to three bilingual classes with the remaining periods distributed throughout the school's regular instructional program. Since each student carried at least six periods per day, ample opportunity was provided for integration with English dominant pupils. Each Title VII student was interviewed by the project director and placed in classes suitable to his/her individual needs. The program has remained committed to offering the bilingual program students educational opportunities parallel to those offered in the mainstream program of the school.

Bilingual instruction was distributed in the following way:

A. Greek

American Studies	18 pupils
Economics	26 pupils
Contemporary Social Issues	22 pupils
Western Civilization	22 pupils
Algebra, Commercial Math, Geometry	27 pupils
Biology	29 pupils

B. Arabic

American Studies	25 pupils
Fundamental Math, Commercial Math	21 pupils
Economics	23 pupils
Western Civilization	23 pupils

C. Spanish

American Studies	36 pupils
Economics	31 pupils
Contemporary Social Issues	30 pupils
Algebra, Commercial Math, Fundamental Math, Geometry	60 pupils
Chemistry	22 pupils
Health Science	48 pupils
Commercial Spanish	28 pupils
Spanish Typing	17 pupils
Native Language Arts	70 pupils

All students received instruction in English. This was accomplished through classes in ESL and Reading in English. For example a recent arrival could be taking up to two periods of ESL daily. A student who had reached a certain level of English proficiency could be taking one ESL period a day and one class of Reading in English with a partially mainstreamed class (50% bilingual; 50% English dominant).

The following table summarizes the students taking ESL and English Reading classes (mainstream classes) by the number of periods a day and language group.

TABLE IV

Number of Bilingual Program Students in ESL or English Classes: A Breakdown by Language Group and Numbers of Instructional Hours Daily

	ESL		ENGLISH READING	
Language Group	1 period day	2 periods day	1 period day	2 periods day
Arabic	22	15	21	-
Greek	27	10	24	1
Spanish	75	20	43	-

The specific objective of creating a transitional ESL class has been achieved. One advanced ESL class was currently in operation. In this class greater emphasis was placed on reading and writing in addition to understanding and speaking English,

which is the primary goal in other ESL classes. Students participating in this class are expected to be placed in mainstream English reading classes for the next school year.

The total number of students treated by the program was approximately 215, a minor change from the target number of 200 originally proposed. This small increase is attributable to the growth in the Arabic population. About 60% of these students were continuing in the project from last year, while 40% were new entries in the school.

MAINSTREAM CLASSES

The project director reviewed and analyzed each student's folder periodically and at the end of his/her participation in the program. In this way a decision could be made for students to be completely or partially mainstreamed, based on their proficiency in English and achievement in subject areas. Fourteen students who met the exit requirements were placed in the school's mainstream program. The students and their parents were notified and invited to individual conferences to discuss the change and its implications in the student's remaining time in the school. Students exiting the program are encouraged to continue to use the bilingual library and resource center and to seek help from the program staff, if needed.

Very few students exit the program for reasons other than having met the requirements. Last year, 36 students graduated, 12 left the program under parental option, 20 left for reasons of mobility, and a few for miscellaneous reasons (dropouts, marriage, work, etc.)

During the 78/79 a school year a considerable number of students have been partially mainstreamed. Students who upon a teacher's recommendation and on the basis of progress demonstrated on tests, are able to function in some subject classes outside of the bilingual program were placed there. For instance, approximately 55 students were enrolled in mainstream English reading classes and about 20 students were taking mainstream Math classes.

The project director kept in touch with mainstreamed students. Their new grade advisor was in constant communication with the project director.

CURRICULUM AND MATERIALS DEVELOPMENT

One of the major functions of GRASP has been the development of instructional materials of all types. Although some texts, audiovisual and testing materials have been available commercially in Spanish, a great deal of work has been done to develop supplementary materials suited to the instructional program. English texts and materials were adapted and translated to provide tools equivalent to those used in the mainstream program and to supplement commercial texts, tests and materials that have been purchased.

There was a dearth of commercial materials for the Greek and Arabic components. The project director, after exploring various lists and brochures advertising texts and other educational materials, found that said materials were, in reality, unobtainable. Consequently, all teaching aids, tests and written materials were produced by the resource teachers. Units of instruction in all courses taught were created on an ongoing basis, as were evaluative instruments and supplementary materials. Again, the

models were English texts, tests and materials used in equivalent courses which were translated, adapted and modified for the specific exigencies of the instructional program of GRASP.

The following Resource Units were completed by the end of the 78/79 school year:

A. Spanish:
   1. Chemistry I
   2. American Studies I
   3. CSI (Current Social Issues)
   4. Economics
   5. Biology

B. Greek:
   1. Applied Science I
   2. Applied Science II
   3. Western Civilization I

C. Arabic:
   1. American Studies I
   2. Western Civilization I
   3. Earth Science

These resource units, while serving as teacher aids, were duplicated and distributed to the students as basic or supplementary course materials.

The New York State Education Department has agreed to make adjustments for LEP students in the Competency Testing Program, mandated for the first time this year for graduating seniors.

The program staff was, therefore, involved in the translation of basic competency tests in Greek and Arabic, as well as Regents type examinations in Arabic. Greek Regents tests, as well as all Spanish examinations, will be supplied by the State.

The unique features of the program, the Greek and Arabic components, have aroused a great deal of interest in the city. In addition, many inquiries from all parts of the country are received and responded to concerning materials, methods of instruction and various cultural events sponsored by the project.

All materials, courses of study and evaluative items created and developed by the program staff have been, upon completion, disseminated to the Resource Center of the Office of Bilingual Education in New York City and New York State, the Dissemination Center for Bilingual Bicultural Education Center in Austin, Texas, and other interested parties.

STAFF DEVELOPMENT

The 15% of the budget allotted for training this year has continued to be utilized to develop staff on the theoretical as well as practical levels. Five staff members attending local colleges (i.e., Long Island University) took courses which focused on the various theories and practices of bilingual education. This formal training took place in the fall and spring semesters of the current year and is projected to lead two staff members to the achievement of a Master's Degree and the teacher trainer to the attainment of a doctorate in bilingual education. In addition, funds were provided for the Arabic bilingual paraprofessional to commence her studies toward a B.A. degree at the City University of New York.

The practical phase of the staff development program, which proved most beneficial last year and was continued this year, was an in-service and on-site training program carried out by a teacher trainer under the supervision of the project director.

The duties of the teacher trainer included preparing in-service bulletins, aiding staff members with the development of instructional materials, providing resource materials, demonstrating the role and use of visual aids, conducting demonstration lessons, attending out-of-school workshops, periodically visiting the Board of Education's bilingual resource center to examine new materials, and generally assisting the project director with all phases of the in-service training program.

The most productive aspect of the teacher trainer's activities was the systematic on-site training of the Title VII staff, as well as ESL and other teachers involved in the school's bilingual education program.

This training was implemented in the form of weekly workshops which concentrated on the application of various theoretical concepts with immediate follow-up and remediation of any problems that arose. The continuity ensuing from the ongoing workshops proved most beneficial in terms of improving instruction, encouraging creative approaches and overcoming specific difficulties and weaknesses. The following topics, representing various problems encountered by staff members, were explored during the 78/79 school year:

a. Reading Impact Conference

b. Lesson Planning

c. Test Construction

d. Articulation of Second Language Learning with Subject Area Instruction

e. Individualization of Instruction

f. Integration of Culture in Content Area Instruction

g. The Slow Learner, Methods and Approaches

h. Bilingual Education - Pros and Cons

i. Cultural Differences in Education

j. Educational Guidance, Graduation Requirements and Related Matters

k. Demonstration of A/V Equipment and Materials

l. Auxiliary Personnel in a Bilingual Setting

m. Development of Study Habits

n. Testing - Philosophy and Techniques

One of the project director's long range objectives is to compile a teacher training manual (focused on bilingual education) based on the minutes of these workshops. This manual may be disseminated to centers for bilingual education to share the approaches, techniques and methods developed with other interested parties.

The bilingual staff also met once a month. These meetings were parallel to those meetings of the school personnel in general. Their main objectives were to disseminate information as to the implementation of school policies, and to solve internal problems.

Members of the bilingual staff attended, among others, the following conferences:

1) Management Institute in Washington

2) Office of Bilingual Education and Bilingual Resource Center Meetings.

3) N.A.B.E. conference in Seattle.

PARENTAL AND COMMUNITY INVOLVEMENT

The Parent Advisory Council of the Fort Hamilton High School bilingual program did not meet as often as had been planned. However, its 8 members attended several meetings during the year. The Advisory Council held its first meeting on November 16, 1978. The parents discussed the state of the program and expressed great satisfaction with the progress of their children. Some parents favored a more transitional approach with greater emphasis on English instruction. The parents were unanimous in their realization that the program was instrumental in developing very positive attitudes towards the school among their children. It was decided to retain the present framework of three regularly scheduled meetings per year. The following two meetings (January 17th and March 20th) dealt with general school procedures and a review of the continuation proposal respectively. Parents were informed of the impact of the projected new amendments on the future structure of the program. The consensus among the Parent Council members was that their children had made considerable strides in English as well as in the content areas.

In view of the trilingual nature of the program, Parent Council meetings have been somewhat awkward. Much of the discussion had to be translated three times. Limited materials were handed out in translation to enable parents to follow the meetings more effectively.

In addition to the regular meetings, the program staff has continued to make every effort to maintain frequent school-home contact. Parents were contacted by telephone, home visits or letters in the native language whenever the occasion for parental input or involvement arose. Parents were referred to ESL classes for adults whenever they expressed the desire to further their education.

Parents have also been actively involved during this last year (78/79) in activities such as:

1. P.T.A. Meetings
2. Cultural activities, such as Greek Independence Day and Greek Heritage Week
3. Advisory Council meeting
4. Open School Day
5. Fund raising
6. Parent-teacher conferences.

Some factors believed to affect parent participation in this program were identified to be:

1. Cultural: parents from certain groups do not come to school for their children's problems.
2. Linguistic: most parents do not speak English
3. Working: particularly among the Greeks, their working schedules do not permit participation.

In addition to letters, phone calls and home visits, the bilingual program communicated with parents and the community by publishing a newsletter.

AFFECTIVE DOMAIN

Some of the responses to questions in this domain were necessarily subjective, but they are believed to be valuable indicators of the program's impact on the students, and thus are important sources of information.

Bilingual students were active in the school's extra-curricular program and contributed to the school's special activities. Approximately eighty are members of various clubs and teams. Students participated in language clubs and in school-wide sports. On several occasions, such as P.T.A. meetings and Greek Heritage Week, groups of bilingual students provided entertainment by performing ethnic folk dances.

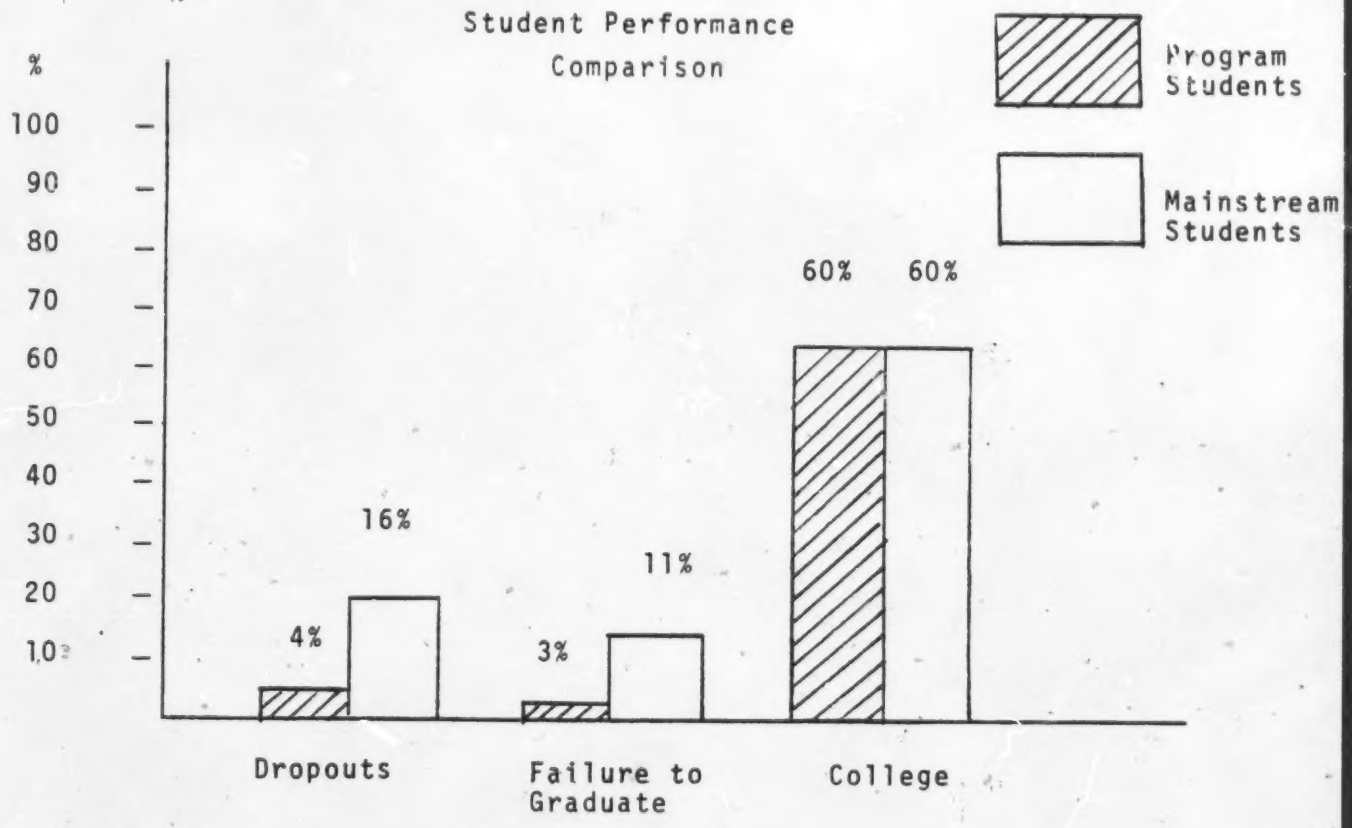
Bilingual program students have also won their share in the school's honors program. Twelve students have been elected to join the National Honor Society. Membership is based on superior achievement, service and leadership. Among the 36 bilingual graduates of January and June, 1979, three received diplomas endorsed with "honors" and nine diplomas endorsed with "merit". These designations are awarded by predetermined grade averages applicable to all graduates. These 36 graduates brought the total number of graduates to 112 in the four years of the program's existence. Only one of the bilingual seniors failed to graduate last June (3%), while the school at large had 80 nongraduates (11%).

Approximately 60% of the bilingual graduates went to post high school institutions, which is about par with the mainstream graduates. Most of these pupils arrived in this country within

the last four years and would not have achieved graduation at this time without instruction in their native languages.

During the last school year the dropout rate among bilingual students was 4%, while the rest of the school's dropout figure stood at 16%. Table V reflects student success in these areas:

TABLE V



There were no instances of vandalism during the 1978-1979 school year, and no suspensions among students in the bilingual program. A positive attitude toward the program has been manifested by students in visits to the bilingual office and in conversations with their resource teachers.

In addition, the attendance rate of program students as a whole substantially surpassed the school-wide attendance rate. Attendance figures are presented in the findings section of this report.

SUPPORTIVE SERVICES

The Fort Hamilton High School bilingual program did not have a guidance counselor or a community relations worker . Nevertheless, certain support services were provided.

Whenever it became necessary, parents were contacted by letter or phone. All school notices were translated in the three target languages. If a serious problem arose, one of the three resource teachers visited the home of the students.

Individual guidance was provided on an on-going basis by the project director, resource teachers and teacher trainer. Group guidance took place whenever a "mini-assembly" was called to deal with a particular problem. College and employment advisement were provided for groups and to individuals. Hostos Community College, Lehman and Kingsborough Community colleges have been contacted. Graduating seniors were taken to visit each campus. They were encouraged to apply to the college of their choice, around 85% of the Hispanic graduates went to college.

Tutoring took place all though the school year. Students were tutored collectively or on a one-to-one basis depending on their needs. Next year, tutoring will be provided for the Basic Competency Tests. Tutoring was provided by the Resource Teachers and/or the paraprofessionals. Close to 25 students participated in a Work-Study Program.

FINDINGS

The following section presents the results of the testing administered to establish the effects of program on student performance. Students were tested in the following areas:

Reading in English	Stanford Reading Achievement Test, Level III
	Comprehensive Test of Basic Skills, Form S, Level III (McGraw-Hill)
Native Language Arts	CIA - Prueba de Lectura, Level III
Mathematics	Teacher-made tests
Science	Teacher-made tests
Social Science	Teacher-made tests
Spanish Typing	Teacher-made tests
Commercial Spanish	Teacher-made tests
Attendance	School and program records

The following analyses were performed:

a) On pre/post standardized tests of reading in English and in Spanish, statistical and educational significance are reported:

1) Statistical significance was determined through the performance of correlated t-tests. This analysis demonstrates whether there is a significant difference between mean raw scores generated at two points in time for students with matched pre/post test scores. It does not represent an estimate of how students would have done in the absence of the program. No such estimate could be made because of the inapplicability of test norms for this population and the unavailability of an appropriate comparison group.

2) Educational Significance was determined by applying a formula recommended by Jacob Cohen[1]. It became desirable to establish such an estimate because of the small sample sizes prevalent at Ft. Hamilton H.S. Frequently substantial differences between means fail to achieve a level of statistical significance if the numbers of observations for each unit of analysis is small (e.g., less than ten). Cohen has devised a convention for interpreting observed indices of educational significance. Such indices are derived by considering the pre-test post-test mean differences of the group and a common standard deviation for that group. As a rule of thumb the following indices are recommended by Cohen as guides to interpreting educational significance (ES):

a difference of 1/5 = .20 = small ES

a difference of 1/2 = .50 = medium ES

a difference of 4/5 = .80 = large ES

b) On teacher made criterion referenced tests, the results are presented in terms of the numbers and percentages of students achieving the criterion levels set for performance.

c) The attentance rate of students participating in the bilingual program are compared with those of the entire school population.

The following section presents the student outcome information in tabular form.

---

[1]Cohen, Jacob. Statistical power analysis for the behavioral sciences. New York, Academic Press, 1977.

TABLE VI

ENGLISH READING PERFORMANCE

SPANISH LANGUAGE STUDENTS

Significance of Mean Total Raw Score Differences Between Initial and Final Test Scores for Spanish Speaking Students With Full Instructional Treatment on the Stanford Achievement Test Level III

		Pre-Test		Post-Test						
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Corr. Pre/post	t	p	ES
9	24	67.8	31.3	84.9	34.1	17.1	.886	5.29	.001	1.08
10	30	87.0	27.7	100.4	26.8	13.4	.935	7.41	.001	1.35
11	31	85.5	37.7	108.2	27.5	22.7	.571	4.01	.005	.72
12	17	97.2	24.1	107.1	23.2	9.9	.992	4.35	.001	1.06

Spanish speaking students at all grade levels made statistically and educationally significant gains between pre and post tests on the Stanford Achievement Test. Indices of significance were large, both statistical and educational. Mean pre test scores ranged from a low of 67.8 at the 9th grade level to a high of 97.2 at the 12th grade. Post test scores ranged from a low of 84.9 at the 9th grade to a high of 108.2 at the 11th grade. The mean gains ranged from a low of 9.9 at the 12th grade level to a high of 22.7 at the 11th grade.

TABLE VII

ENGLISH READING PERFORMANCE

ARABIC LANGUAGE STUDENTS

Significance of Mean Total Raw Score, Differences Between Initial and Final Test Scores for Arabic Speaking Students With Full Instructional Treatment on the Comprehensive Test Of Basic Skill, FormS, Level II

		Pre-Test		Post-Test						
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Corr. Pre/post	t	p	ES
9	10	59.6	25.6	79.1	27.1	19.5	.885	4.85	.001	1.53
10	6	81.3	30.7	105.8	25.9	24.5	.130	1.60	N.S.	.65
11	5	71.8	13.5	91.0	24.5	19.2	.630	2.25	.05	1.06
12	6	88.0	16.9	113.0	12.6	25.0	.631	4.62	.01	1.89

Arabic-speaking students made statistically significant gains in English Reading Performance in grades 9, 11, and 12. Students in the 10th grade failed to show statistically significant increase in performance at the 5% level of significance. Students in each grade level made positive increases in performance ranging from 19.2 to 25.0 raw score points. The differences at each grade level were educationally significant, ranging from .65 to 1.89 standard deviations. Hence, statistically significant differences occurred for the majority of grade levels, and educational significance was observed for all grades.

TABLE VIII

ENGLISH READING PERFORMANCE

GREEK LANGUAGE STUDENTS

Significance of Mean Total Raw Score Differences Between Initial and Final Test Scores for Greek Speaking Students With Full Instructional Treatment on the Stanford Achievement Test Level III

		Pre-Test		Post-Test						
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Corr. Pre/post	t	p	ES
9	10	92.5	32.9	112.3	16.5	29.8	.49	2.82	.05	.89
10	9	113.4	37.1	131.3	32.1	17.9	.909	3.46	.01	1.15
11	16	106.8	28.0	124.7	24.3	17.9	.769	3.95	.01	.99
12	6	121.3	47.0	144.2	12.1	23.0	.46	1.32	N.S.	.54

Greek speaking students made statistically significant gains and educationally significant gains in English reading in grades 9, 10 and 11. In grade 12, while students did not show a gain that was statistically significant, the pre test to post test gain was of moderate educational significance.

TABLE IX

SPANISH READING PERFORMANCE

Significance of the Mean Raw Score Differences Between Initial and Final Test Scores for Students with Full Instructional Treatment on the CIA, Prueba de Lectura, Level III

		Pre-Test		Post-Test						
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Corr. Pre/post	t	p	ES
9	23	56.4	20.5	73.9	23.5	17.5	.838	6.55	.005	1.37
10	30	87.5	27.8	97.9	28.7	10.4	.865	3.87	.005	.71
11	26	79.9	35.6	105.3	26.5	25.4	.800	6.05	.005	1.19
12	15	98.7	25.0	107.1	23.6	8.4	.880	2.71	.01	.70

Spanish speaking students made statistically and educationally significant gains in Spanish Reading Performance at all grade levels. The pre-test scores ranged from a low of 56.4 at the 9th grade to a high of 98.7 at the 12th grade. Post test scores ranged from a low of 73.9 at the 9th grade to a high of 107.1 at the 12th grade. The mean gains ranged from a low of 8.4 points at the 12th grade to a high of 25.4 points at the 11th grade.

TABLE X

SPANISH LANGUAGE ARTS

Number and Percent of Students passing the Teacher-Made Examinations in Spanish Language Arts.

	FALL			SPRING		
Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	22	18	82%	25	22	88%
10	27	19	70%	24	17	71%
11	16	14	88%	20	19	95%
12	10	10	100%	9	7	78%

The number of students passing Spanish Language Arts during the Fall ranged from a low of 70% in the tenth grade to a high of perfect class mastery (100%) in the twelfth grade. In the Spring, the number of students passing Spanish Language Arts ranged from a low of 71% in the tenth grade to a high of 95% in the eleventh grade.

TABLE XI

NATIVE LANGUAGE ARTS

FOR GREEK SPEAKING STUDENTS

Number and Percent of Students passing Greek Language Arts

	FALL			SPRING		
Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	4	4	100%	5	5	100%
10	4	4	100%	3	2	67%
11	9	9	100%	10	9	90%
12	2	2	100%	-	-	

All Greek students (100%) passed Native Language Arts during the fall term. During the spring term the number of Greek students passing Native Language Arts ranged from a low of 67% in the tenth grade to perfect class mastery (100%) in the 9th grade. Caution must be exercised in interpreting these results however, as only a few students were tested at each grade.

TABLE XII

MATHEMATICS ACHIEVEMENT

SPANISH SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Mathematics

Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	21	18	86%	24	22	92%
10	26	19	73%	26	22	85%
11	7	7	100%	10	8	80%
12	6	5	83%	5	4	80%

The number of Spanish speaking students passing Mathematics in the Fall ranged from 73% at the tenth grade to a perfect class mastery (100%) at the eleventh grade. In the Spring, the number of students passing Mathematics ranged from a low of 80% at the eleventh and twelfth grades to a high of 92% at the ninth grade.

TABLE XIII

MATHEMATICS ACHIEVEMENT

ARABIC SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made examinations in Mathematics

	FALL			SPRING		
Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	9	6	67%	11	10	91%
10	5	4	80%	6	6	100%
11	3	1	33%	5	4	80%
12	7	7	100%	4	4	100%

The percentage of Arabic Speaking students passing Mathematics during the Fall ranged from a low of 33% at the eleventh grade to a high of perfect class mastery (100%) at the twelfth grade. In the Spring, the percentage of students passing was higher. It ranged from a low of 80% in the eleventh grade to a high of perfect class mastery for both tenth and twelfth grades.

TABLE XIV

MATHEMATICS ACHIEVEMENT

GREEK SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Mathematics

	FALL			SPRING		
Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	9	8	89%	9	8	89%
10	3	3	100%	5	5	100%
11	11	9	82%	8	8	100%
12	4	4	100%	2	2	100%

The number of Greek Students passing Mathematics in the Fall ranged from a low of 82% at the 11th grade to a high of perfect class mastery (100%) at the 10th and 12th grades. In the Spring, the number of Greek Students passing Social Studies ranged from a low of 89% at the 9th grade to a high of 100% at the 10th, 11th and 12th grades.

TABLE XV

SCIENCE ACHIEVEMENT

SPANISH SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Science

	FALL			SPRING		
Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	20	16	80%	18	16	89 %
10	18	12	67%	17	12	71%
11	16	12	75%	12	10	83%
12	18	17	94%	13	13	100%

The number of Spanish speaking students passing Science in the Fall ranged from a low of 67% at the tenth grade to a high of 94% at the twelfth grade. In the Spring, the number of students passing Science increased in all grades. This number ranged from a low of 71% at the tenth grade to a high of 100% at the twelfth grade.

TABLE XVI

SCIENCE ACHIEVEMENT

GREEK SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Science

	FALL			SPRING		
Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing
9	9	7	78%	8	7	88%
10	7	5	71%	8	7	88%
11	12	11	92%	15	11	73%
12	4	4	100%	6	6	100%

The number of Greek speaking students passing Science in the Fall ranged from a low of 71% at the 10th grade to a high of 100% at the 12th grade. In the Spring, the number of Greek students passing Science ranged from a low of 73% at the 11th grade to a high of 100% at the 12th grade.

TABLE XVII

SOCIAL STUDIES ACHIEVEMENT

SPANISH SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Social Studies

	FALL 1978			SPRING 1979		
Grade	No. Taking Subject	No. Passing	% Passing	No. Taking Subject	No. Passing	% Passing
9	-	-	-	3	2	67%
10	13	8	62%	10	7	70%
11	27	22	81%	28	21	75%
12	8	8	100%	12	12	100%

The number of Spanish Speaking students passing Social Studies during the Fall ranged from a low of 62% at the 10th grade to a high of 100% at the 12th grade. In the Spring, the number of Spanish speaking students passing Social Studies ranged from a low of 67% at the 9th grade to a high of 100% at the 12th grade.

TABLE XVIII

SOCIAL STUDIES ACHIEVEMENT

ARABIC SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Social Studies

	FALL 1978			SPRING 1979		
Grade	No. Taking Subject	No. Passing	% Passing	No. Taking Subject	No. Passing	% Passing
9	8	7	88%	12	11	92%
10	6	4	67%	7	6	86%
11	6	5	83%	7	7	100%
12	10	10	100%	6	6	100%

The percentage of Arabic speaking students passing Social Studies in the Fall ranged from a low of 67% at the 10th grade to 100% at the 12th grade. In the Spring, the percentages of students passing Social Studies was higher for all grades, ranging from a low of 86% at the 10th grade to a high 100% for both the 11th and 12th grades.

TABLE XIX

SOCIAL STUDIES ACHIEVEMENT

GREEK SPEAKING STUDENTS

Number and Percent of Students passing Teacher-Made Examinations in Social Studies

	FALL 1978			SPRING 1979		
Grade	No. Taking Subject	No. Passing	% Passing	No. Taking Subject	No. Passing	% Passing
9	6	6	100%	5	5	100%
10	8	8	100%	10	9	90%
11	12	11	92%	13	13	100%
12	4	4	100%	4	4	100%

The number of Greek students passing Social Studies during the Fall semester ranged from a low of 92% at the 11th grade to a high of 100% at the 9th, 10th and 12th grades. In the Spring, the number of Greek students passing Social Studies ranged from a low of 90% at the 10th grade to a high of perfect class mastery (100%) at the 9th, 11th and 12th grades.

TABLE XX

SPANISH TYPING

Number and Percent of Students passing Teacher-Made Examinations in Spanish Typing

	FALL 1978			SPRING 1979		
Grade	No. Taking Subject	No. Passing	% Passing	No. Taking Subject	No. Passing	% Passing
9	5	5	100%	4	4	100%
10	4	3	75%	4	4	100%
11	6	6	83%	4	4	100%
12	7	7	100%	3	3	100%

The number of students passing Spanish Typing during the Fall ranged from a low of 75% at the 10th grade to a high of 100% at the 9th and 12th grades. In the Spring, all the grades achieved 100% passing.

TABLE XXI

COMMERCIAL SPANISH

Number and Percent of Students passing Teacher-made Examinations in Commercial Spanish

	FALL 1978			SPRING 1979		
Grade	No. Taking Subject	No. Passing	% Passing	No. Taking Subject	No. Passing	% Passing
9	7	6	86%	6	6	100%
10	6	4	67%	5	5	100%
11	5	4	80%	3	3	100%
12	8	8	100%	6	6	100%

The number of students passing Commercial Spanish during the Fall ranged from a low of 67% at the 10th grade to a high of 100% at the 12th grade. In the Spring, all grades achieved 100% mastery.

TABLE XXII

ATTENDANCE RATES FOR SPANISH SPEAKING STUDENTS

Number and Percent of students Surpassing the General School Attendance Rate, Reporting the Program Attendance Rate and Standard Deviation.

Grade	N	Program Attendance Rate	Standard Deviation	Number Surpassing School Rate	Percent Surpassing School Rate
9	30	84.1	14.6	21	70%
10	35	82.0	14.5	19	54%
11	34	87.4	9.9	26	76%
12	24	89.4	9.4	19	79%

The average attendance rate of Spanish speaking students ranged from a low of 82% at the 10th grade to a high of 89% at the 12th grade. The percentage of Spanish students exceeding the school wide average attendance ranged from a low of 54% at the 10th grade to a high of 79% at the 12th grade. In all cases the program achieved the objective of surpassing the school attendance rate.

TABLE XXIII

ATTENDANCE RATES OF ARABIC SPEAKING STUDENTS

Number and Percent of Students Surpassing the General School Attendance Rate, Reporting the Program Attendance Rate and Standard Deviation.

Grade	N	Program Attendance Rate	Standard Deviation	Number Surpassing School Rate	Percent Surpassing School Rate
9	12	93.3	9.3	10	83%
10	7	93.4	5.4	6	86%
11	8	90.6	7.2	7	88%
12	10	92.6	6.1	9	90%

The average attendance rates of Arabic speaking students ranged from a low of 91% in the 11th grade to a high of 93% at the 9th, 10th and 12th grades. The percentage of students exceeding the school wide average attendance ranged from a low of 83% at the 9th grade to a high of 90% at the 12th grade. The program achieved its objectives in all cases.

TABLE XXIV

ATTENDANCE RATES OF GREEK SPEAKING STUDENTS

Number and Percent of Students Surpassing the General School Attendance Rate, Reporting the Program Attendance Rate and Standard Deviation.

Grade	N	Program Attendance Rate	Standard Deviation	Number Surpassing School Rate	Percent Surpassing School Rate
9	12	93.4	6.6	10	83%
10	11	93.5	6.7	10	91%
11	17	90.9	10.7	15	88%
12	7	97.0	2.9	7	100%

The average attendance of Greek students ranged from a low of 91% at the 11th grade to a high of 97% at the 12th grade. The percentage of students exceeding the school-wide average attendance ranged from a low of 91% in the 10th grade to a high of 100% at the 12th grade. In all cases the program met the objective of surpassing the school-wide attendance rate by a large margin.

CONCLUSION AND RECOMMENDATIONS

Generally, the program was implemented as proposed. The school administration has been supportive of the program, a support which has facilitated the coordinator's ability to work with the various school departments serving bilingual program students. The program appears to hold a fairly high status in school, as evidenced by the participation of the students in general school activities and honors clubs.

When compared with school-wide figures, bilingual program students were less likely to drop out of school, were more likely to graduate, had higher attendance rates, and were at par in going on to college. A substantial number of students graduated with honors or certificates of merit. Evidence of student support for the program can be derived from the fact that many students who were deemed to be eligible for full mainstreaming requested to remain somehow affiliated with the program, if not with course work, at least with counseling and other supportive services, and participation in program activities. The maintenance of this relationship was frequently supported by the parents.

Student performance on standarized tests and in content area courses presents further evidence of program effectiveness.

In standarized tests of <u>reading in English</u> Greek speaking students made significant statistical gains between pre and post testing at all grades except the twelfth. The twelfth grade gain, however, may be considered to be of moderate educational significance.

Arabic speaking students made statistically significant gains at all grade levels except the tenth, where the gain was of moderate educational significance. Spanish speaking students made statistically and educationally significant gains at all grade levels.

In native language arts both Spanish and Greek speaking students achieved the program goals for student passing teacher-made examinations. 100% in the Fall and 89% in the Spring of the Greek speaking students passed the course expectations. 81% in the Fall and 83% in the Spring of Spanish-speaking students passed the course expectations. Spanish speaking students made statistically and educationally significant gains in a standardized test of reading in Spanish at all grade levels.

In Mathematics substantial percentages of students in all groups achieved the course expectations. Among Greek-speaking students 89% in the Fall and 96% in the Spring met the course expectations. The percentages of Arabic-speaking students meeting the course expectations were 75% in the Fall and 92% in the Spring. For Spanish-speaking students the percentages meeting the course expectations were 82% in the Fall and 86% in the Spring.

Similar patterns of achievement were evident in Science and Social Studies. In Science, 84% of the Greek speaking students mastered the course content in both Fall and Spring semesters. For Spanish speaking students the percentages were 79% and 85% for Fall and Spring respectively. For Social Studies 97% of the Greek speaking students passed the course content in both semesters.

For Arabic-speaking students the percentages passing were 87% in the Fall and 94% in the Spring. For Spanish speaking students the percentages were 79% in both the Fall and Spring semesters.

Two additional courses were available for Spanish-speaking students: Spanish Typing and Commercial Spanish. In Spanish Typing 95% in the Fall and 100% in the Spring of students enrolled mastered the course content. In Commercial Spanish the percentages passing were 85% and 100% in the Fall and Spring semesters respectively.

The attendance figures further support the general success of the GRASP project. The attendance rate for each student was compared with the school wide attendance rate. Eighty-nine percent (89%) of Greek-speaking students surpassed the school-wide attendance rate. For Arabic-speaking students the percentage was 86%, and for Spanish-speaking students the percentage was 69%.

Based on the information available about student performance in course work, involvement in school activities, and comparisons with school-wide performance in such areas as drop-out rates, college acceptances, attendance rates and rate of graduation, one must conclude that the GRASP project at Ft. Hamilton High School has been extremely successful. The comparisons with school-wide figures are particularly stringent when one considers that the school is nearly 70% white and of middle to upper-middle class socio-economic status.

Recommendations

The bilingual program at Ft. Hamilton High School is a substantially mature program which has achieved a great deal of stability. As such, the program is not in need of major changes. However, the following recommendations are proposed:

1. Additional bilingual teachers should be hired. The need is most pressing for teachers who are competent in the Arabic language.

2. The attendance rate for Hispanic students, although surpassing the school-wide rate, is lagging behind that of the Greek and Arabic students. This may be due to the fact that Hispanic students travel to school from other areas while the Greek and Arabic students do not, and/or because there is a prevailing attitude towards education among Hispanics which is not present among the Greeks and Arabs. Also, Hispanics, while performing well, are not achieveing at the same rate as the other groups.

   The program should consider the hiring of a Spanish speaking family assistant and/or guidance Counselor to specifically address these needs.

3. There continue to be large numbers of LEP students in the school who are not receiving bilingual program services. The program should be continued and expanded to serve students not presently receiving bilingual program services.